



CARNARVON'S KEY ROLE IN SPACE EXPLORATION

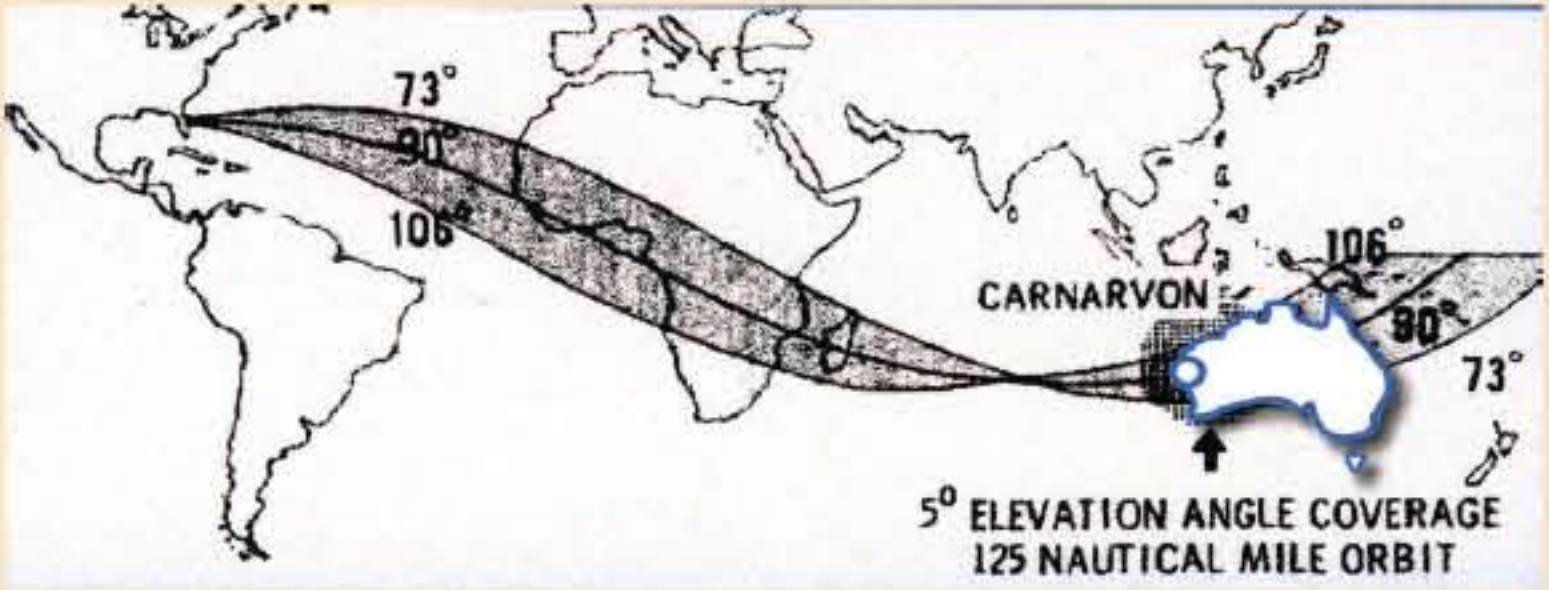


The Race to the Moon

On 25 May 1961 the President of the United States of America John F Kennedy made an historic challenge to the American nation to put a man on the moon and return him safely to Earth before the end of the 1960s. This challenge followed the success of the Soviets when cosmonaut Yuri Gagarin became the first man to enter space and orbit the Earth on 12 April 1961.

NASA Chooses Carnarvon for a Tracking Station Site

Previously in February 1960 the United States and Australian Governments had established a partnership to build several specialised tracking stations in Australia to support the USA space program. One of those was located at Muchea, Western Australia. However the Gemini and Apollo phases of USA's Manned Space Flight Network program required the establishment of a command station at a more northerly location in Western Australia. After an extensive search the National Aeronautics and Space Administration of America (NASA), in July 1962, chose a site at Brown Range, near Carnarvon, a logical choice; the launch flight passed over the Carnarvon area and Australia was a politically stable country.



Gemini and Apollo Missions Launch Flight Path

Carnarvon in the Early 1960s

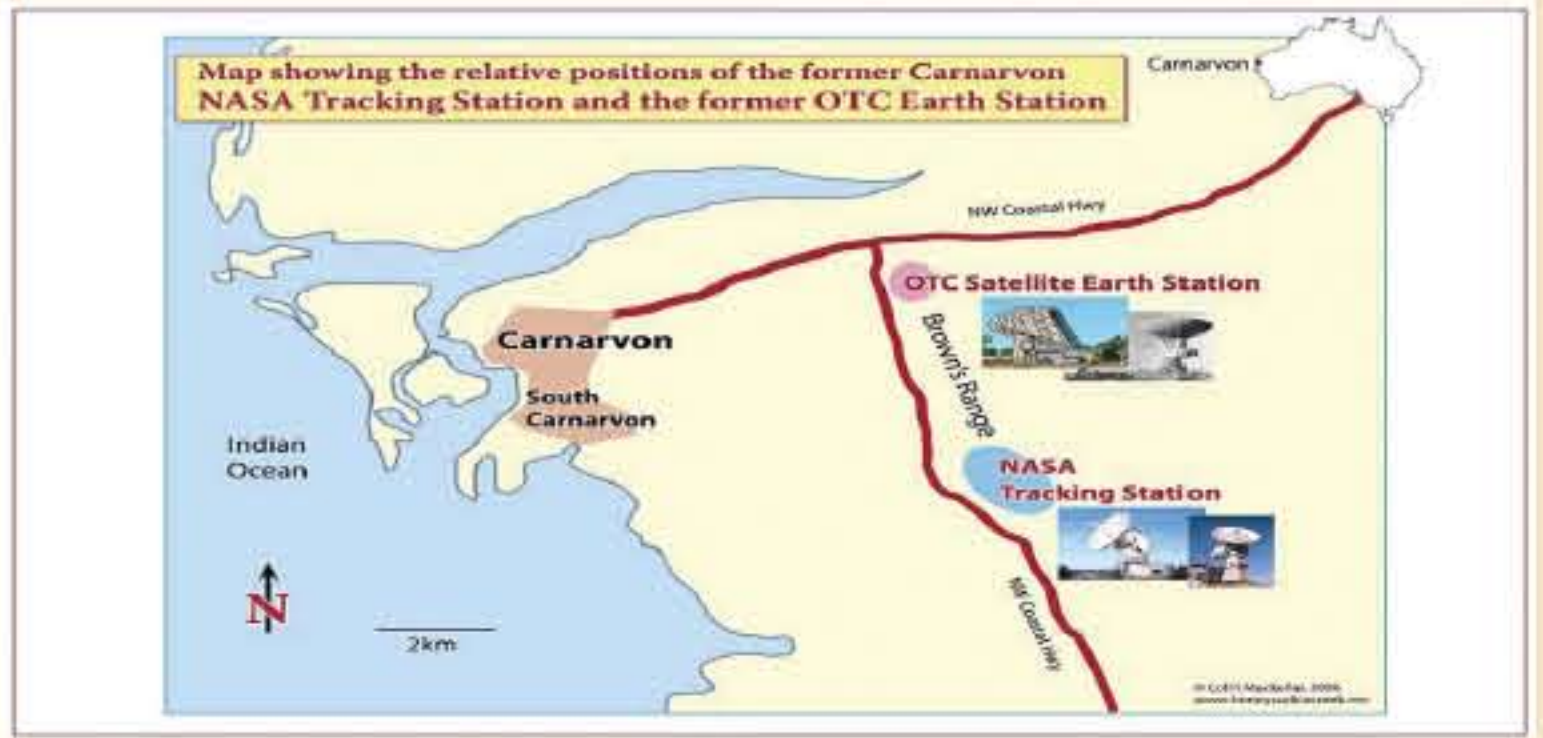
In 1962 Carnarvon was a remote rural town of 2000 inhabitants with poor communications, minimal infrastructure, lack of training facilities and career opportunities. The location of the NASA tracking station, and, subsequently the Overseas Telecommunications Corporation, Australia, (OTC) Satellite-Earth Station, had a significant social impact on the town. Up to 250 NASA tracking station and OTC employees were located in the town during the operation of the tracking station.



Carnarvon Townsite in the Early 1960s

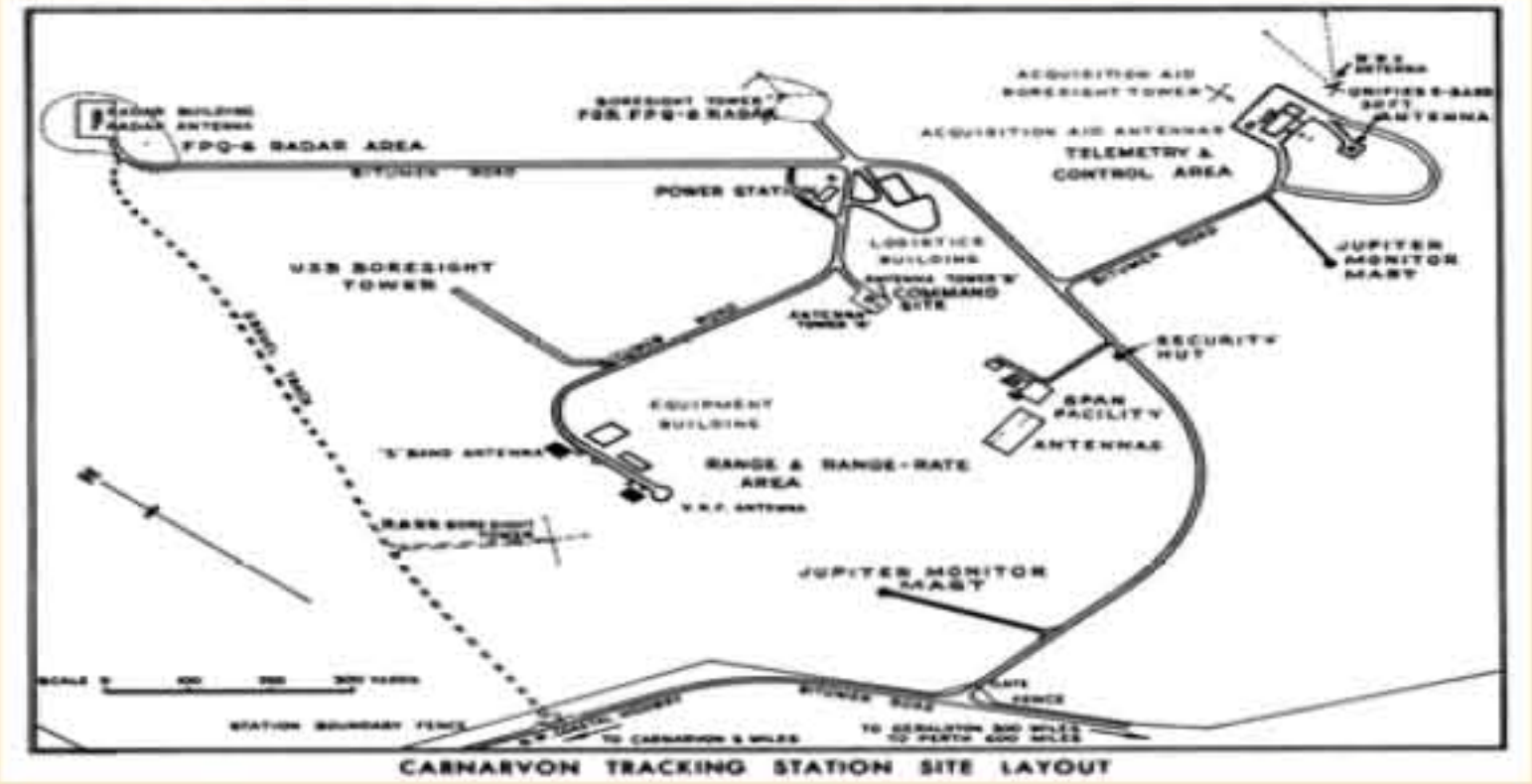
Establishment of NASA Space Tracking Station

Australia provided the land and built the facilities and the US provided technical equipment and equipment installation support, and training of staff. Amalgamated Wireless (Australasia) Ltd (AWA) was contracted to the Australian Government to recruit on to its payroll the majority of the station's operational and maintenance staff. Australia made a small contribution towards NASA's billion dollar budget in exchange for the autonomous operation of NASA stations in Australia, the only nation to be accorded that privilege.



The NASA Space Tracking Station at Carnarvon

The initially undeveloped site, consisted of roads, buildings, vans, antennas, dishes and masts, spread over an area of approximately 1.8 square kilometres.



There were five principal locations. These were the Telemetry and Command, FPQ-6 Radar, Goddard Range and Range Rate; the Power Station and the Solar Particle Alert Network. NASA Carnarvon was one of only two NASA stations with an FPQ-6 long range precision tracking radar, the most accurate in the world; the only station that could support both early orbit definition and the early post insertion phase of the Manned Space Flight Network and Deep Space Network into space, the Moon and the planets. The Carnarvon Space Tracking Station (Call sign CRO – NASA Carnarvon) became operational in 1963. Until it closed in May 1975, it was NASA's largest tracking station outside of USA.



Assembly of USB Antenna



Gemini control room

NASA's tracking staff took a very keen interest in the town's cultural, educational, social and sporting activities. Floats were entered in annual Carnarvon Tropical Festivals.



Tracking staff carrying Gemini 11Vs and its Agena target vehicle



Venusian aliens terrorising the citizens of Canarvon

Overseas Telecommunications Station Carnarvon

To ensure reliable communications, particularly for the Apollo missions, NASA contracted the Overseas Telecommunications Commission Australia (OTC) to build and operate Australia's first Satellite-Earth Station, 6 km north of the Tracking Station. The 12.8 m by 16.5m Casshorn antenna, known as the 'Sugar Scoop', was completed in October 1966. In 1969, OTC constructed a new antenna to provide routine communications, a 29.7m parabolic dish. During the Gemini and Apollo missions the OTC earth station acted as relay station for CRO. It did not track NASA spacecraft or receive signals directly from the moon.



OTC Station, with 'Sugar Scoop' on left and parabolic dish on the right

The Eagle has Landed

Up to November 1966 NASA Carnarvon participated in ten Gemini missions which were needed to perfect critical space orbital manoeuvres such as docking in space. A new generation of equipment – the Unified S-band System (USB) was introduced in 1965 to support the Apollo missions which culminated in sending and landing men on the Moon, spacewalks and returning them to Earth. In total there were seventeen Apollo missions but the most memorable was Apollo 11. Astronauts Neil Armstrong, Michael Collins and Edwin (Buzz) Aldrin lifted off from Cape Canaveral on July 16, 1969 and three days later, on July 21, Australian time, Armstrong piloted the lunar module Eagle down from the command module Columbia to Moon's surface. Shortly after Armstrong descended a ladder, stepped onto the Moon's surface and spoke the historic words: *That's one small step for man; one giant leap for mankind.* The event was watched live on TV throughout the world thanks to Apollo's signals being relayed to the Honeysuckle Creek tracking station near Canberra, along a land line to the Moree OTC Earth Station, up to a Intelsat satellite over the Pacific Ocean and then back to OTC Earth Station Carnarvon and Jamesburg Earth Station in USA.



Astronauts 1 to 3, Neil Armstrong, Michael Collins and Buzz Aldrin



Saturn V, with Apollo 11, lifts off at Cape Canaveral



Armstrong in the lunar module at Tranquility Base



Aldrin about to step onto the lunar surface

Engineering Heritage Australia in 2012 awarded the NASA Space Tracking Station Carnarvon an Engineering Heritage International Marker in recognition of the part played by the Australian operated space station in the NASA space exploration program.

